

**UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF GEORGIA
VALDOSTA DIVISION**

**SOUTHERN STATES
COOPERATIVE, INC.,**

Plaintiff,

v.

**MELICK AQUAFEEDS, INC. and
MELICK AQUAFEEDS, LLC,**

Defendants.

**Civil Action No. 7:08-cv-13
(HL)**

ORDER

Before the Court are the parties' cross-motions to exclude expert testimony (Docs. 34, 38), the Defendants' motion for summary judgment (Doc. 26), and the Plaintiff's motion to strike (Doc. 56). For the following reasons, the motions to exclude expert testimony are denied, the motion for summary judgment is denied, and the motion to strike is denied as moot.

I. FACTUAL BACKGROUND

Plaintiff Southern States Cooperative, Inc. ("Southern States") is a cooperative that grows tilapia for commercial sale. Defendant Melick Aquafeed, Inc. ("Melick, Inc.") is a Pennsylvania corporation that manufactures tilapia feed. Defendant Melick Aquafeed, LLC ("Melick, LLC") also manufactures tilapia feed, but is a Mississippi Corporation. This case arises out of a dispute between the parties wherein Southern States

contends that the Defendants' tilapia feed caused its tilapia to grow at a slower rate. The basis for the Court's jurisdiction is diversity.

A. Southern States' Tilapia Farming Operations

Southern States' operates numerous tilapia farms. In Delaware, it operates tilapia farms called Blessing 1 and 2. In North Carolina, its tilapia farms are named Growout and Sassnet. (SOMF ¶ 3).¹ In Georgia, its tilapia farms are Pavo 1, Pavo 2, Davis 1, Davis 2, Davis 3, and Langdale. (SOMF ¶ 3).

The tilapia are first grown in nursery facilities located on Southern States' farms. When the tilapia reach 100 grams, they are transferred to production houses located on the farms. (Goad Aff. ¶ 3). There is at least one production house located on each farm. (SOMF ¶ 5).

Within the production house are four recirculating aquaculture systems ("RAS"). (Craig Report at 12; Davis Report at 1). The RAS consist of three tanks. (Goad Dep. at 49). The weight of the tilapia in each tank differs. In other words, the size of the fish is staggered by tank. (Goad Dep. at 49). In the first tank are younger tilapia that weigh little, in the second tank are more mature tilapia that weigh more than the tilapia in the first tank, and in the third tank are the tilapia that weigh the most and are approaching harvesting. (Goad Dep. at 49-50). The tanks are staggered to prevent the biomass of the fish from overpowering the RAS filtering process. (Goad Dep. at 49).

¹ "SOMF" refers to the Defendants' statement of material facts. The cited paragraphs are those admitted by Southern States in its response to the statement of material facts.

The RAS has a computer that controls how much feed is fed to the tilapia in the three tanks. (SOMF ¶ 6). The RAS computer also controls the water filtering process, water temperature, pH levels, and oxygen levels. (Davis Report at 1).

B. The Tilapia Feed

Southern States began purchasing feed from Melick, Inc. in 2003. (Goad Aff. ¶ 2). In October 2006, Southern States' Georgia farms began to receive feed from Melick, LLC. (Goad Aff. ¶ 4). Regardless of whether Melick, Inc. or Melick, LLC provided feed to Southern States, Southern States placed its feed orders to and received invoices from Melick, Inc. (Goad Aff. ¶ 4).

Tilapia feed consists of protein and lipid nutrients. A manufacturer of feed will specify that its feed contains guaranteed minimum levels of protein and lipid nutrients. If the protein or lipid levels in the feed fall too much below the guaranteed minimums, then the feed constitutes a tag violation. (Craig Report at 4).

Until July 2006, Southern States was satisfied with the quality of feed it received from the Defendants.² (SOMF ¶ 8). Beginning in the latter part of 2006, however, feed delivered by the Defendants contained debris like pieces of wood and metal screws. (Goad Aff. ¶ 9).³ James Melvin Goad, director of Southern States' Farmer's Catch division, also testified that Southern States' production started decreasing in July 2006, even though Southern States increased the amount of tanks in production. (Goad Dep. at 73, Goad Aff. ¶ 6)). The production loss occurred because Southern

² Melick, Inc. has not moved for dismissal or summary judgment on the basis that it did not provide Southern States' feed during the time Southern States contends it suffered production losses. As a result, the Court refers to the feed delivered to Southern States as "the Defendants' feed."

³ Southern States is not making a claim for the damage the debris caused to its production facilities.

States had fewer tilapia ready for harvest each month due to slow growth. (Goad Dep. at 53). The production loss was worse at the Georgia farms. (Goad Dep. at 73).

Southern States began to investigate the possible causes of its production loss. It examined the RAS filtration processes, double checked its equipment, calibrated the feeders, removed extra organic matter in the tanks, and conducted extra cleanings of the filters. (Goad Dep. at 73).

The water quality was evaluated by Southern States. (Goad Dep. at 23). Temperature, alkalinity, and ammonia, nitrate, chloride, and pH levels were recorded daily on a control sheet. (Goad Dep. at 21). If there was a problem with the water quality, then Southern States would correct it that day. (Goad Dep. at 23). The control sheets were kept for seven days. On the eighth day, the control sheet was thrown away and the water quality data was recorded on a new sheet. (Goad Dep. at 23).

Southern States began to suspect that feed was the cause of its production losses. (Goad Aff. ¶ 8). As a result, for about one month beginning in April 2007 Southern States fed its tilapia Arkat feed rather than the Defendants' feed. (SOMF ¶ 15). After feeding its tilapia Arkat feed for about one month, Southern States returned to the Defendants' feed because it received assurances from Melick, Inc. that any issues with its feed quality were resolved. (SOMF ¶ 15; Goad. Dep. at 146).

The Defendants told Southern States that it had each load of feed tested to verify nutrient levels before the feed was shipped to Southern States. (Goad Aff. ¶ 11). Nevertheless, in April 2007 Southern States began sending samples of the feed it received from the Defendants to the New Jersey Feed Labs for testing. (SOMF ¶ 14). The lab tested the protein and lipid levels. To determine the lipid levels in the feed

samples, the lab used the ether extraction method, which generally produces a lower amount of lipid content than is actually in the sample. (Schulze Dep. at 59). The testing results showed that the protein and lipid contents of feed delivered to Southern States contained variable amounts of protein and lipid nutrients. (Craig Dep. at 23; Davis report at 6).

Southern States stopped purchasing feed from the Defendants in August 2007. On January 22, 2008, it filed a complaint in this Court seeking to recover its damages caused by the Defendants' feed. Southern States' second amended complaint, filed on October 23, 2008, alleges breach of express warranty, breach of implied warranty of merchantability or fitness for a particular purpose, product liability, negligent misrepresentation, fraud, attorneys' fees and costs.

The parties have designated experts. Dr. Steven Craig seeks to testify on behalf of Southern States. Dr. Allen Davis seeks to testify on behalf of the Defendants. Both experts have filed reports and have been deposed. Each party has filed a motion to exclude the opposing party's expert testimony. The Defendants have also sought summary judgment as a matter of law on all of Southern States' claims.

II. MOTION TO STRIKE

At the outset, the Court addresses Southern States' motion to strike certain documents filed by the Defendants as exhibits to their reply briefs in support of their motions for summary judgment and to exclude expert testimony. Because the Court denies the Defendants' motions, the Court denies Southern States' motion to strike as moot.

III. MOTIONS TO EXCLUDE EXPERT TESTIMONY

Southern States challenges the admissibility of the expert testimony of Dr. Allen Davis. Defendants challenge the admissibility of the expert testimony of Dr. Steven Craig. The Court finds that the expert testimonies are admissible and therefore denies both motions.

A. Federal Rules of Evidence 702 Legal Standard

The Federal Rules of Evidence Rule 702 require trial courts to act as gatekeepers and analyze the foundations of expert opinions. United States v. Frazier, 387 F.3d 1244, 1260 (11th Cir. 2004). The purpose of this gatekeeping function “is to make certain that an expert, whether basing testimony upon professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field.” Kumho Tire Co., Ltd. v. Carmichael, 526 U.S. 137, 152, 119 S. Ct. 1167, 143 L.Ed.2d 238 (1999).

Under Rule 702, a district court may admit expert testimony into evidence if (1) the expert is qualified; (2) the methodology employed by the expert is sufficiently reliable; and (3) the testimony will assist the trier of fact. City of Tuscaloosa v. Harcros Chems., Inc., 158 F.3d 548, 562 (11th Cir. 1998). The proponent of the expert testimony bears the burden of demonstrating by a preponderance of the evidence that his expert meets these requirements. See Frazier, 387 F.3d at 1260 (placing the burden on the proponent of expert testimony); Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 592 n. 10, 113 S. Ct. 2786, 125 L.Ed.2d 469 (1993) (noting that the trial judge must make a determination of admissibility by a preponderance of the evidence).

To begin with the qualification requirement, the Eleventh Circuit has explained that “experts may be qualified in various ways.” Frazier, 387 F.3d at 1260. Experience in a particular field may qualify an expert to offer an opinion on a particular matter. Id. at 1261. “[T]here is no mechanical checklist for measuring whether an expert is qualified to offer opinion evidence in a particular field.” Santos v. Posadas De Puerto Rico Assocs. Inc., 452 F.3d 59, 63 (1st Cir. 2006). In all cases the court must focus its inquiry on whether the expert has the requisite skill, experience, training, and education to offer the testimony he intends to introduce. Poulis-Minott v. Smith, 388 F.3d 354, 359 (1st Cir. 2004).

As to the reliability requirement, the Supreme Court’s Daubert decision sets forth the applicable standard. After the adoption of the Federal Rules of Evidence, many courts had continued to utilize the “Frye” test when assessing the admissibility of expert testimony. Daubert, 526 U.S. at 587. The Supreme Court held that this high bar for admissibility was inconsistent with the liberal approach to discovery in the Federal Rules. Id. at 589.

In an attempt to lower the bar, the Court articulated a standard derived from the language of Rule 702. The rule states:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

Fed. R. Evid. 702. In Daubert, the Court reasoned that in order for an expert's testimony to be based on "scientific knowledge," the opinion must be "derived by the scientific method." Daubert, 509 U.S. at 590. At the core of Daubert is the requirement that courts must focus "solely on principles and methodology, not on the conclusions that they generate." Id. at 595.

There are four guiding factors that a district court may consider in assessing the reliability of expert testimony: "(1) whether the expert's methodology has been tested or is capable of being tested; (2) whether the technique has been subjected to peer review and publication; (3) the known and potential error rate of the methodology; and (4) whether the technique has been generally accepted in the proper scientific community." McDowell v. Brown, 392 F.3d 1283, 1298 (11th Cir. 2004) (citing Daubert, 509 U.S. at 593-94). These factors are not exhaustive, but are meant to be helpful to the court.⁴

Finally, whether the expert testimony assists the trier of fact is determined by finding that the testimony "concerns matters that are beyond the understanding of the average lay person." Frazier, 387 F.3d at 1262. "[E]xpert testimony generally will not help the trier of fact when it offers nothing more than what lawyers for the parties can argue in closing arguments." Id. Nor does expert testimony help the trier of fact if it

⁴ Additional factors the court may consider include:

- (1) Whether the expert is proposing to testify about matters growing naturally and directly out of research he has conducted independent of the litigation, or whether he has developed his opinion expressly for purposes of testifying;
- (2) Whether the expert has unjustifiably extrapolated from an accepted to an unfounded conclusion;
- (3) Whether the expert is being as careful as he would be in his regular professional work outside his paid litigation consulting;
- (4) Whether the field of expertise claimed by the expert is known to reach reliable results for the type of opinion the expert would give.

Fed. R. Evid. 702, advisory committee's notes (2000 amends.).

fails to “fit” with the facts of the case. McDowell v. Brown, 392 F.3d 1283, 1298-99 (11th Cir. 2004). There testimony does not “fit” when a large analytical leap must be made between the facts and the opinion. Gen. Elec. Co. v. Joiner, 522 U.S. 136, 147, 118 S. Ct. 512, 139 L.Ed.2d 508 (1997).

B. Admissibility of Dr. Davis’ Testimony

Southern States challenges the admissibility of Dr. Davis’ expert testimony. Dr. Davis is expected to testify that: (1) multiple causes could have caused Southern States’ production loss and that it is impossible to rule-out these other causes; (2) the protein and lipid levels in the feed samples were not severe enough to cause a decrease in Southern States’ tilapia production; (3) the lipid levels in the feed samples may be inaccurate because the ether extraction testing method was used; and (4) tilapia production at Southern States was difficult to determine. The Court finds that Dr. Davis’ expert opinions are admissible.

To begin with the first prong, Southern States does not contend that Dr. Davis is insufficiently qualified to render his proffered opinions. Dr. Davis’ qualifications are extensive. He is a professor of fish nutrition and aquaculture production facilities at Auburn University; he received his Ph.D. in fish nutrition; most of his career has focused on studying the nutritional requirements of warm water fish species like tilapia; and he has published more than 80 works in the field of fish nutrition. He also has experience in determining causes of fish production losses in a RAS. The Court finds that Dr. Davis’ experience and educational background renders him qualified to offer his opinions.

Southern States challenges the admission of Dr. Davis' testimony on the basis that it is unreliable and would not assist the trier of fact. Accordingly, the Court focuses its analysis on the second and third prongs of the test.

1. Reliability of methodology

Although Defendants do not state that Dr. Davis followed the differential diagnosis methodology, the Court finds that Dr. Davis relied on the differential diagnosis process to formulate his first three opinions.

Differential diagnosis is a common scientific technique, and federal courts recognize that a properly conducted differential diagnosis is admissible under Daubert. See, e.g., Westberry v. Gislaved Gummi AB, 178 F.3d 257, 262-63 (4th Cir. 1999).

A differential diagnosis is where the cause of a medical problem is determined by determining the possible causes for the patient's symptoms and then eliminating each of these potential causes until reaching one that cannot be ruled out or determining which of those that cannot be excluded is the most likely.⁵ Id. at 262. “[D]ifferential diagnosis generally is a technique that has widespread acceptance in the medical community, has been subject to peer review, and does not frequently lead to incorrect results . . .” In re Paoli R.R. Yard PCB Litigation, 35 F.3d 717, 758 (3d Cir. 1994). The differential diagnosis methodology is not limited to determining the cause of a human medical condition; it may also be used to determine the cause of an

⁵ The Court believes that the process that Dr. Davis used is defined as “differential etiology.” Differential diagnosis leads to the diagnosis of a patient’s condition, not necessarily the cause of the condition. McClain v. Metaboline Intern., Inc., 401 F.3d 1233, 1252 (11th Cir. 2005). In contrast, differential etiology is “a term used on occasion by expert witnesses or courts to describe the investigation and reasoning that leads to the determination of external causation . . .” Id. Generally, the term differential diagnosis is used in place of differential etiology.

animal's medical condition. See, e.g., Clausen v. M/V New Carissa, 339 F.3d 1049, 1059 (9th Cir. 2003).

When evaluating whether a differential diagnosis was reliably applied, many of the Daubert factors – testability, general acceptance, peer review, and rate of error – provide limited assistance. Paoli, 35 F.3d at 758. As a result, the Eleventh Circuit has developed a framework for assessing the reliability of differential diagnosis. Under this framework, the expert must first develop “a comprehensive list” of all possible causes for the condition under consideration. McClain v. Metaboline Intern., Inc., 401 F.3d 1233, 1253 (11th Cir. 2005). Second, the expert must show by scientifically valid methodology that the suggested causes are capable of causing the condition. Id. Third, the expert must eliminate all causes but one. Id. If causes cannot be ruled out, then the expert must explain “which of those that cannot be excluded is the most likely.” Westberry, 178 F.3d at 262. Importantly, the final cause must be one of the causes “ruled in” by the expert as being capable of causing the condition. McClain, 401 F.3d at 1253.

If allowed to testify, Dr. Davis will explain that tilapia performance can be affected by numerous factors, that in order to properly evaluate the possible causes of tilapia performance many factors must be considered, and that he could not pinpoint the Defendants feed as the cause of any production impairment. He will also testify that he assumed that the feed samples collected for testing were collected pursuant to industry standards.

The Court finds that Dr. Davis has satisfied the first and second requirements of a reliable differential diagnosis. Dr. Davis testified that to identify a fish production

problem he must review a “great deal of information.” The information includes the culture system design specifications, management and maintenance practices, disease occurrences, information about the feed, and all production, water quality, and health records. Dr. Davis also stated that the nutrient content of the fish feed may affect how a fish grows.

In stating why an extensive review of information is necessary Dr. Davis explained that RAS are “by far one of the most complicated culture technologies employed to produce food fish.” According to a published article, the RAS employ many operational components. The failure of any operation can cause the whole RAS to fail. An operational failure may affect fish growth. Moreover, to the extent that his experience provides a basis for the opinion, “[e]xperience in a field may offer another path to exert status” when it is clear “ ‘how that experience leads to the conclusion reached, why that experience is a sufficient basis for the opinion, and how that experience is reliably applied to the facts.’ ” Frazier, 387 F.3d at 1260-61 (quoting Fed. R. Evid. 702 advisory committee’s note). Dr. Davis explained in his deposition that he is commonly asked by fish producers to identify a problem with fish production and that in his experience, a thorough review of information is necessary. It is clear to the Court that Dr. Davis’ experience in identifying causes of fish production impairment could form the basis of his opinion that an extensive review of information is necessary.

As for the third differential diagnosis requirement, Dr. Davis provided specific reasons why he could not rule out factors that may affect fish production. If an expert

chooses to rule out a cause, then the elimination must be founded on more than “subjective beliefs or unsupported speculation.” Clausen, 339 F.3d at 1058.⁶

The first reason he provided for not ruling out potential causes was that Southern States did not provide sufficient data to enable him to eliminate RAS failure. He stated that he was given limited data on the history of the growth of the tilapia. He explained that he was not provided water quality or disease data. Southern States argues that Dr. Davis should have ruled out any operational failures of the RAS system because there was no evidence that there were any problems with the components of Southern States’ RAS. The Court disagrees. Dr. Davis explained the importance of a thorough review of RAS data. In his experience, a farmer might assert that “something is not an issue when it actually is an issue.” Dr. Davis testified that what may not be an issue to one person may actually be the cause of the problem. A slight variation in the RAS operations can lead to a disease stress, or poor performance. Reviewing the records in each case allows Dr. Davis to “peel [the] onion back . . . until you get to the heart of the problem.” Based on this testimony, the Court finds that Dr. Davis provided a sufficient explanation for his decision not to rule out RAS operational failure. This is not a case where the decision was based on subjective beliefs or unsupported speculation.

The second reason Dr. Davis gave for not ruling out potential causes was that tilapia are tolerant to a wide range of nutrient intakes and feed quality. According to a published article, tilapia are grown using a wide range of feeds. Satisfactory growth

⁶ Although this standard applies to situations when an expert rules out a cause, the Court also applies it to situations where the expert does not rule out a cause.

may be obtained so long as the protein is well balanced. Dr. Davis did not see any protein levels in the samples that were too low to affect tilapia growth and the lipid levels documented in the samples were within ranges tolerated by tilapia.

The third reason he provided was that the lipid test results may be inaccurate. The Defendants' feed samples were tested for their protein and lipid amounts by the New Jersey Feed Laboratory. The laboratory used the ether extraction method to determine the amount of lipids in the feed samples. Results from the ether extraction method generally show a lower lipid level than is actually in the sample. (Davis Report at 7; Craig Dep. at 61). Thus, according to Dr. Davis, the samples that were considered tag violations because the samples contained low lipid levels were likely within specifications. He also stated that the samples showing high lipid levels in the feed did not contain lipid levels considered to be intolerable for tilapia.

Based on all of these reasons, Dr. Davis concluded he did not see clear evidence that the Defendants' feed was the primary reason for reduced fish performance. Dr. Davis made this decision based "upon a variety of objective, verifiable evidence." Kennedy v. Collagen Corp., 161 F.3d 1226, 1228 (9th Cir. 1998). He also provided explanations for each of his three opinions. Thus, Dr. Davis's opinions are explained by a reliable methodology that was applied in a way consistent with his experience and the literature.

Dr. Davis' final opinion is that reduced tilapia performance was difficult to ascertain from the submitted records. Dr. Davis wrote in his report that he was only provided data on Southern States' fish production from July 2006-September 2006. He was, however, provided with Southern States' summary of its production data from

July 2006 to June 2007. He ran statistical analysis on Southern States' data summary and concluded that there was no significant difference in the average production at Southern States' Georgia farms and non-Georgia farms. He also concluded that there was no significant difference in average tilapia production in Georgia between the time the tilapia were fed the Defendants' feed and the time the tilapia were fed other feed.

A statistical analysis is reliable if it is a product of simple arithmetic and algebra. City of Tuscaloosa, 158 F.3d at 565. Dr. Davis' opinion is based on average production at Southern States' farms. To determine average production, Dr. Davis utilized basic mathematical principles. The Court finds that his production data is derived from a reliable methodology.

2. Assisting the Trier of Fact

Dr. Davis' testimony will assist the trier of fact. The average lay person is unlikely to have experience with or understand fish nutrition needs, factors that influence fish production, the methods by which fish farmers produce fish, or the available tests to measure fish feed quality. In particular, Dr. Davis provides a biological and technical view of how the RAS affects fish growth. Although a jury might have some opinions about these issues, the opinions would likely be limited. Dr. Davis' testimony offers insight beyond that of an average person.

Contrary to Southern States' suggestion, Dr. Davis offers testimony on the main issue in this case: whether the Defendants' feed reduced Southern States' tilapia production. His main role is to rebut Southern States' expert testimony by exposing the shaky elements of Dr. Craig's testimony. To be an admissible rebuttal expert witness, Dr. Davis need not pinpoint a cause of impaired tilapia production; he may

instead testify that there is not enough information to determine whether the Defendants' feed had any effect on Southern States' tilapia production. He may also testify that the amounts of protein and lipid levels were not severe enough to cause damage to tilapia growth, that the ether extraction method produces a low lipid analysis, and that any production decrease at Southern States' farms was difficult to determine.

3. Remaining Objections

Southern States' remaining objections are without merit. Without citing any law, it argues that Dr. Davis should not be permitted to state that he had to assume that the feed samples collected for testing were collected pursuant to the American Feed Control Officials (AAFCO) standards. The reason for this objection is that the Defendants collected the samples; therefore, Dr. Davis should not be able to support his opinions by stating that he did not know how the samples were collected, that they may have been collected improperly, but he nevertheless assumed that the samples were properly collected.

Southern States' objection relates to an issue that may be raised on cross examination or during closing argument. Southern States may question Dr. Davis or other witnesses about whether the samples may have been taken improperly. Through questioning and argument, Southern States may present to the jury the possibility that the Defendants purposefully took inadequate samples in order to avoid an accurate determination of the fat and protein levels in its feed.

Southern States also raises an additional issue with Dr. Davis' view on the ether extract test. Southern States agrees that the ether extract analysis may not be

accurate, but points out that if an alternative test called the acid hydrolysis test had been used, then the test results would show that some of the samples contained higher lipid levels. While Southern States' objection is unclear, it appears that Southern States has again raised an issue proper for cross examination, not admissibility. Dr. Davis opined that he could not pinpoint the Defendants' feed as the cause of any purported tilapia production impairment because the low lipid test results would satisfy specification standards if the acid hydrolysis test was used and the high lipid test results were well within the range tolerated by tilapia. Southern States on cross examination may undercut Dr. Davis' opinion by pointing out that if an acid hydrolysis test was used, then the high lipid content in some samples may have been high enough to cause harm.

In sum, the Court finds that Dr. Davis' testimony meets the admissibility requirements of Rule 702. Any deficiencies in Dr. Davis' opinion are properly addressed through "[v]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof" to the jury, not by excluding his testimony altogether. Daubert, 509 U.S. at 595. Southern States' motion to exclude the testimony of Dr. Davis is accordingly denied.

C. Admissibility of Dr. Craig's Testimony

Southern States proposes to offer testimony by Dr. Craig regarding his evaluation of the lipid and protein levels in the Defendants' feed samples and the effect the Defendants' feed had on Southern States' tilapia production. In particular, Dr. Craig's proffered opinions are that (1) the protein and lipid levels in the Defendants' feed samples did not meet the minimum guaranteed protein or lipid levels

stated on the feed tag; (2) optimal protein to energy (lipid) ratios are critical to optimizing production performance in tilapia; and (3) Southern States' overall tilapia production very likely suffered because the Defendants' failed to provide correctly formulated feed or feed with consistent protein to lipid ratios. The Court finds that Dr. Craig's testimony is admissible.

Regarding Dr. Craig's qualifications, the Court finds, like it did with Dr. Davis, that they are extensive. Dr. Craig holds a Ph.D. in fish nutrition, and his area of expertise is aquaculture fish. Formerly, he was a professor at Virginia Tech's College of Veterinary Medicine and taught classes on animal nutrition. He has researched and published articles on lipid and protein levels for fish diets. Currently, he works as a senior research scientist at Virginia Cobia Farms, L.L.C.

The Defendants raise many objections to Dr. Craig's proposed testimony. They object to Dr. Craig's methodology and argue that that his opinions do not reflect Southern States' production data.

1. Methodology

Dr. Craig engaged the differential diagnosis methodology to formulate his opinion that the Defendants' feed was highly likely to be the cause of Southern States' decreased tilapia production. The Defendants object to Dr. Craig's methodology on the basis that Dr. Craig failed to rule in the Defendants' feed as a potential cause and then eliminate it as the cause of Southern States' decreased tilapia production.

i. Ruling In Feed as a Potential Cause

To conduct a reliable differential diagnosis an expert must first rule in causes, or otherwise identify the possible causes capable of causing the problem. Dr. Craig

stated that there are variables that affect tilapia production; the main ones being feed and water quality. This opinion is consistent with Dr. Davis' opinion. Further, the parties do not dispute, and the Court cannot find any reason to doubt, that feed is capable of causing tilapia production to decrease in a RAS. The literature cited by Dr. Davis and Dr. Craig show that protein and lipid levels found in feed may affect the growth of tilapia. It is also undisputed that Southern States fed its tilapia the Defendants' feed and that the samples taken for testing were from the feed the Defendants provided to Southern States.

Dr. Craig further ruled in the Defendants' feed as a potential because the lipid and protein ratios in the feed were not formulated correctly, or at least were inconsistent. He also determined that the feed conversion ratios ("FCR") were higher while the tilapia located in the Georgia farms were fed the Defendants' feed. The FCR refers to the total amount of feed it takes to produce a certain amount of live fish weight. A lower FCR means that it takes less feed to produce the same amount of fish.

Dr. Craig examined the production levels at the Southern States' farms. He noted that tilapia production decreased while the tilapia were fed the Defendants' feed, and that in May through June 2007, the pounds of tilapia marketed declined the most. Based on these facts, he concluded that the Defendants' feed could be a potential cause of Southern States' tilapia production losses.

The Court addresses each of Dr. Craig's reasons for ruling in the Defendants feed as a potential cause. First, Dr. Craig's decision to rule in the Defendants' feed as a potential cause is based in part on the fact that while fed the Defendants' feed,

production decreased. While the mere fact of a temporal relationship does not necessarily mean that there is a causal relationship between the events, a temporal relationship between exposure to a substance and the start of disease or death can provide compelling evidence of causation. Clausen, 339 F.3d at 1059. “The temporal relationship will often be (only) one factor, and how much weight it provides for the overall determination of whether an expert has ‘good grounds’ for his or her conclusion will differ depending on the strength of that relationship.” Heller v. Shaw Inds., Inc., 167 F.3d 146, 154 (3d Cir. 1999).

Second, Dr. Craig ruled in the Defendants’ feed as a possible cause by examining the protein to lipid ratios in the Defendants’ feed samples and the FCRs of the tilapia while the tilapia ate the Defendants’ feed. The samples contained inconsistent protein to lipid ratios, the protein and lipid levels oftentimes did not meet required guaranteed minimal levels, and in 2007, 25% of the samples contained lipid levels 18% more than the guaranteed minimum. The FCR data showed that the Georgia tilapia growth was more inefficient when the tilapia were fed the Defendants’ feed.

According to Dr. Craig’s earlier and independent research, a well balanced protein to energy ratio is critical to optimizing production performance in fish. If protein and energy (lipid) ratios are shifted out of the optimum, then the shift can affect production. Further, excessive lipid levels in feed leads to fat deposition and reduces feed intake. In his deposition, Dr. Craig thoroughly explained how changes in protein to lipid ratios may affect fish production. His explanation was based in his experience as well as his knowledge of the fundamental principles of fish nutrition.

Accordingly, the Court finds that Dr. Craig gave reliable reasons for ruling in the Defendants' feed as a potential cause of Southern States' tilapia production losses.

ii. Objections to Dr. Craig's Rule In

The Defendants object to Dr. Craig's opinion that suboptimal protein to lipid ratios can affect tilapia production. They argue that Dr. Craig's "fluctuating protein and fat" theory has not been tested or subject to peer review. Dr. Craig testified that it would not be possible to conduct a valid scientific experiment where the lipid or protein levels fluctuated. He stated that it would not be a valid scientific approach, and that conclusions could not be drawn based on the experimental design. Although the Court will consider the lack of published data or scientific experimental results of the effects of fluctuating protein and lipid ratios, this factor weighs less heavily in this case due to the simple fact that it is not possible to conduct a scientific experiment regarding fluctuating protein and fat ratios.

The Defendants next object to Dr. Craig's decision to rule in feed as a potential cause because they claim the low protein and high lipid levels found in the feed were not severe enough to cause any harm to tilapia production. The Defendants point to the fact that most commercial producers of tilapia utilize feed that have 32%-38% crude protein levels. Since most of the sample feed test results showed that the Defendants' feed fell within this acceptable range, they argue that Dr. Craig improperly ruled in feed as a potential cause. The Defendants also point to literature that shows tilapia may be fed feed containing up to 18% lipid levels. Since Dr. Craig did not examine whether the feed contained lipid levels exceeding 18%, they argue that his decision to rule in feed is unreliable.

The problem with the Defendants' objection is that Dr. Craig's opinion is based on the relationship between the amount of protein and the amount of lipid found in the feed. He testified that solely looking at the protein levels and the lipid levels is inadequate; rather, one must look at the protein to energy ratio to determine the potential effect the feed will have on tilapia growth. Critical to optimal fish growth is a balance of protein to lipids. Fish must eat the correct amount of lipids to satisfy their energy requirement and the right amount of protein to increase growth. If the protein and lipid levels are imbalanced, then fish production may suffer. In Dr. Craig's opinion, the protein and lipid ratios in the Defendants' feed were imbalanced and the imbalanced ratios could affect the tilapia production.

iii. Determining a More Likely Cause

To be admissible, a differential diagnosis must either reliably rule out causes or reliably determine which cause that cannot be ruled-out is more likely to have caused the harm. The Court concludes that Dr. Craig reliably found that out of all the potential causes, the Defendants' feed was more likely the cause of Southern States' production losses.⁷ According to Dr. Craig, feed and water quality are two of the most important variables in fish production. Southern States did not provide Dr. Craig water quality data. As a result, Dr. Craig assumed in his report that standard operating procedures for maintaining adequate water quality were in place and followed by Southern States. "An expert's opinion, where based on assumed facts, must find

⁷ The Defendants incorrectly argue that Dr. Craig must rule out causes to conduct a differential diagnosis. As already stated by the Court, a differential diagnosis occurs when the expert either rules out causes or determines that of the causes that cannot be ruled-out, one cause is more likely than the rest.

some support for those assumptions in the record.” McLean v. 988011 Ontario, Ltd., 224 F.3d 797, 801 (6th Cir. 2000) (citation omitted).

The reason given by Dr. Craig for his assumption was that production levels were stable at Southern States before 2005 and he was familiar with Southern States’ operating systems. This assumption has support in the record. John Martin, manager at Southern States, testified that he and Melvin Goad investigated whether water quality was poor and determined that it was not. (Martin Dep. at 81). Because Dr. Craig’s opinion is based on an assumed fact supported by the record, the Court will not exclude it on this basis.

Moreover, even if Dr. Craig had not made that assumption, he reliably concluded that the feed was more likely to be the cause of tilapia production losses. In his deposition he testified that “tilapia are very, very tolerant to poor water quality probably more so than any other cultured fish species in the world.” His report and deposition also state that in an RAS feed is the most important input because the consistency and quality of the feed impacts the water quality. These opinions were derived from his experience and knowledge regarding fish nutrition. Thus, even if Dr. Craig did not assume that water quality was not an issue, his opinion that feed was the likely cause was not based upon “subjective beliefs or unsupported speculation.” Clausen, 339 F.3d at 1058.

The Defendants claim that Dr. Craig did not rule out other factors like disease, the one month switch to Arkat feed, faulty equipment, poor circulatory systems, seed stock, or bad management as potential causes for Southern States’ tilapia production losses. An expert is not required to rule out all alternative possible explanations.

“Only where a defendant points to a plausible alternative cause and the [expert] offers no explanation for why he or she has concluded that was not the sole cause, that [expert’s] methodology is unreliable.” Heller, 167 F.3d at 156 (citation and quotation omitted).

The Court finds that these alternative explanations were addressed by Dr. Craig, although not in a detailed way. Dr. Craig explained that he considered other factors, did not ignore them, and could not rule them out. He also was aware that Southern States’ had switched feeds, but did not know the tonnage and the amounts. He nevertheless concluded that feed was more likely the cause because feed impacts all aspects of fish production, it is the most important input in an RAS, and in viewing the data and graph, there was a firm cause and effect relationship. These statements certainly provide more than “no explanation” as to why Dr. Craig believes the feed was more likely the cause of tilapia production impairment. Because he considered these alternative explanations and provided an explanation for his conclusions, his opinions are admissible.

2. Testimony will Assist the Trier of Fact

The Defendants contend that Dr. Craig’s opinions are inadmissible because his opinions were not based on the production data of each farm and tank. According to the Defendants, if Dr. Craig looked at the production numbers on an individual farm and tank basis, then he would have seen that production was up in one farm or tank and down in another farm or tank even though all the tilapia were fed Defendants’ feed. In addition, the average daily growth rate of the tilapia and the length of time it

took for a tank of fish to reach harvesting weight declined steadily even after Southern States permanently stopped using the Defendants' feed.

An expert's testimony will not assist the trier of fact if the data relied upon by the expert is materially different from the data relevant to the facts of the case. Astra Aktiebolag v. Andrx Pharmaceuticals, Inc., 222 F. Supp. 2d 423, 488 (S.D.N.Y. 2002). An opinion derived from erroneous data is appropriately excluded. United States v. City of Miami, Fla., 115 F.3d 870, 873 (11th Cir. 1997).

While the Court agrees that these numbers certainly affect the strength of Dr. Craig's analysis, it is unwilling to find that Dr. Craig's opinions are materially different from the data relevant to the facts of this case. Dr. Craig relied on the FCR data. The FCR numbers indicated that while the tilapia were fed the Defendants' feed, it took more feed to produce the same amount of tilapia growth. Dr. Craig also viewed the production of the Georgia farms and compared it to the amount of feed fed at all the Georgia farms. The production data indicates that overall production decreased at the Georgia during periods of 2007 and Southern States' had to feed its tilapia more feed in attempt to compensate for the drop in production.

Moreover, Melvin Goad testified that fluctuating monthly production levels are normal. The reasons for the fluctuations are varied. First, the growth rates for the fish in each tank differ. Fish are graded, those with assigned a number one, grow the fastest; those assigned a number four, grow the slowest. The fish in Southern States' are not separated by grade. Thus, sometimes tanks reach harvest production faster than others. Second, the production data tracks the "pounds marketed," meaning how many pounds of tilapia were sold. Market conditions may affect whether the tilapia in

a harvested tank could be sold. Third, in months where it appears that production went up, he stated Southern States' sold the fish that should have been sold the previous month, but took longer to grow.

Based on the data and the testimony, Dr. Craig's interpretation of the data is subject to question, but the Court cannot say that his opinion fails to fit the data.

3. The Defendants' Remaining Objections

The Defendants state that evidence of foreign material found in their feed and the nursery feed testing results would be inadmissible at trial. Because Dr. Craig based his opinion in part on inadmissible evidence, they argue that Dr. Craig's testimony should be excluded.

During 2007 Southern States found foreign materials in the Defendants' feed it received. The foreign materials included bag ribbons, bolts, and wood. Dr. Craig noted in his report that the presence of foreign material in the feed relates to "the general lack of any type of meaningful quality control with [Melick's] aquafeed manufacturing, shipping and delivery."

Dr. Craig also based his causation opinion in part on nursery feed test results. The testing results of the nursery samples showed that the Defendants' nursery feed consistently did not meet minimum lipid and protein specifications. Dr. Craig relied on these test results to conclude that there was a quality control problem with the feed provided to the older tilapia.

Federal Rule of Evidence 703 states that "[i]f of a type reasonably relied upon by experts in the particular field in forming opinions or inferences upon the subject, the facts or data need not be admissible into evidence in order for the opinion or inference

to be admitted.” Fed. R. Evid. 703. In this case, the Court believes that a fish nutritionist, like Dr. Craig, would reasonably rely on evidence of foreign materials in the feed as well as data showing the quality of the Defendants’ feed sent to other Southern States’ production facilities. This data would be relevant to determining the cause of tilapia production losses. Therefore, his opinions are admissible. The Court need not decide at this time whether that evidence would be admissible at trial.

The Defendants also object to his testimony because Dr. Craig did not know from which farms the Defendants’ feed samples were taken. Such an objection would be relevant to the admissibility of Dr. Craig’s testimony only if the parties disputed whether Southern States fed its tilapia the Defendants’ feed. Moreover, “normally, failure to include variables will affect the analysis’ probativeness, not its admissibility.” Quiet Tech. DC-8, Inc. v. Hurel-Dubois UK Ltd., 326 F.3d 1333, 1346 (11th Cir. 2003) (citation and quotations omitted). The Defendants’ argument on this point goes to the weight of Dr. Craig’s testimony, not the admissibility.

Finally, the Defendants argue Dr. Craig’s testimony is inadmissible because he did not differentiate between Melick, Inc. and Melick, L.L.C.. As already stated, the parties do not dispute that Southern States’ fed its fish the Defendants’ feed and that the samples were taken from the Defendants’ feed delivered to Southern States. This objection should have been raised in a motion for dismissal or summary judgment, not in a motion to exclude expert testimony.

Accordingly, the Defendants’ motion to exclude Dr. Craig’s testimony is denied.

IV. SUMMARY JUDGMENT

The Defendants have moved for summary judgment on all Southern States' claims.

The motion is denied.

A. Summary Judgment Standard

Summary judgment must be granted if "the pleadings, the discovery and disclosure materials on file, and any affidavits show that there is no genuine issue as to any material facts and that the movant is entitled to judgment as a matter of law. Fed. R. Civ. P. 56(c). In ruling on a defendant's motion for summary judgment, the court takes the facts in the light most favorable to the plaintiff. Stanley v. City of Dalton, 219 F.3d 1280, 1287 (11th Cir. 2000). The court may not, however, make credibility determinations or weigh the evidence. Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 255, 106 S. Ct. 2505, 91 L.Ed.2d 202 (1986).

The initial burden lies on the movant to demonstrate that the nonmovant lacks evidence to support an essential element of its claim. Lowe v. Aldridge, 958 F.2d 1565, 1569 (11th Cir. 1992). The burden then shifts to the nonmovant, who must come forward with some evidence that would allow a jury to find in his favor, even if the parties dispute that evidence. Id. If the evidence that the nonmovant presents, however, is "not significantly probative" or "merely colorable," then summary judgment may be granted. Liberty Lobby, 477 U.S. at 249.

B. Analysis

1. All Counts

The Defendants have moved for summary judgment on all counts arguing that there is the absence of reliable, admissible expert testimony to establish causation.

The Defendants contend that without Dr. Craig's testimony, Southern States' claims fail as a matter of law because expert opinion is necessary to establish causation in this case. Because the Court has concluded that Dr. Craig's causation testimony is admissible, the Defendants' motion for summary judgment for lack of causation evidence is denied.

2. Count III – Product Liability

Southern States has agreed that it has no viable products liability claim under Ga. Code. Ann. § 51-1-11. Accordingly, it has withdrawn this claim.

3. Count IV: Negligent misrepresentation and Count V: Fraud

Southern States asserts claims for negligent misrepresentation and fraud. The Defendants have moved for summary judgment on these claims asserting that the Georgia economic loss rule prohibits Southern States from recovering under any tort theory of liability.

The economic loss rule provides that a contracting party who suffers purely economic losses must seek his remedy in contract and not in tort. Gen. Elec. Co. v. Lowe's Home Ctrs., Inc., 608 S.E.2d 636, 637 (Ga. 2005). A plaintiff can recover in tort only those damages “resulting from injury to his person or damage to his property.” Id.

An exception to this rule, the “misrepresentation exception,” provides that

[o]ne who supplies information during the course of his business, profession, employment, or in any transaction in which he has a pecuniary interest has a duty of reasonable care and competence to parties who rely upon the information in circumstances in which the maker was manifestly aware of the use to which the information was to be put and intended that it be so used. This

liability is limited to a foreseeable person or limited class of persons for whom the information was intended, either directly or indirectly.

City of Cairo v. Hightower Consulting Eng'r, Inc., 629 S.E.2d 518, 525 (Ga. App. 2006) (citation omitted). The Defendants' feed tags stated that their feed contained guaranteed minimum and protein levels. Because Southern States contends that the Defendants' feed tags misrepresented the actual levels of protein and lipid levels in the feed, the Court finds that Southern States' tort claims are not barred by the economic loss rule.

4. Count VI: Attorneys' Fees

Southern States seeks attorneys' fees pursuant to Ga. Code Ann. § 51-12-7, which provides that necessary expenses caused by an injury may be recovered in a party's damages estimate, and Ga. Code Ann. §13-6-11, which provides that attorneys' fees may be recovered "where the defendant has acted in bad faith, has been stubbornly litigious, or has caused the plaintiff unnecessary trouble and expense."

The Court denies the Defendants' motion for summary judgment as to the attorneys' fees claim. The Defendants assured Southern States that it tested the nutrient levels in each load of feed delivered to Southern States. Nevertheless, some of the samples collected from the Defendants' feed showed that the nutrient levels in the feed did not meet guaranteed minimum values. This evidence creates a genuine issue of material fact of whether the Defendants acted in bad faith.

5. Spoliation

The Defendants have asked the Court to impose spoliation sanctions against Southern States. Southern States destroyed its weekly water quality data as part of its normal operating procedures. As a result, the Defendants argue that they are prejudiced because they cannot prove that poor water quality caused Southern States' production losses. The sanctions they ask for are either dismissal of Southern States' case or exclusion of testimony that the water quality was good.

A district court has broad discretion to impose sanctions. Flury v. Daimler Chrysler Corp., 427 F.3d 939, 944 (11th Cir. 2005). Federal law governs the imposition of spoliation sanctions, but state law may be used for guidance. Id. Under federal law, dismissal of a case represents the most severe sanction available to a court and should be imposed only where there is bad faith and where lesser sanctions will not suffice. Id.

Under Georgia law, spoliation of critical evidence may justify the imposition of sanctions like dismissal of the case or exclusion of evidence. Id. at 945. To determine whether dismissal is needed the court must consider: (1) the prejudice to the defendant as a result of the destruction of evidence; (2) whether the prejudice could be cured; (3) the practical importance of the evidence; (4) whether the plaintiff acted in bad faith; and (5) the potential for abuse if expert testimony about the evidence was not excluded. Id. (citing Chapman v. Auto Owners Ins. Co., 469 S.E.2d 783, 785 (Ga. App. 1996)).

Even assuming that spoliation has occurred, the Court finds that dismissal or exclusion of testimony is not warranted. The Court finds important that Dr. Craig

opinions are not about the destroyed water quality data; rather, his opinions are about the Defendants' feed. He assumed that the water quality was adequate. The Defendants may question the validity of Dr. Craig's assumption. They may also question Southern States' lay witnesses who speak to water quality.

Upon further pre-trial briefing and possible oral argument, the Court will be in a better position to determine if spoliation occurred and if so, whether it will impose a lesser sanction.⁸

V. CONCLUSION

For the explained reasons, the motions to exclude expert testimony are denied. The Defendants' motion for summary judgment is denied and the motion to strike is denied as moot.

SO ORDERED, this the 22nd day of March, 2010.

s/ Hugh Lawson
HUGH LAWSON, SENIOR JUDGE

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⁸ The Court may decide to charge the jury that spoliation creates a rebuttable presumption that the evidence was harmful to the party that destroyed the evidence. Wal-Mart Stores, Inc. v. Lee, 659 S.E.2d 905, 910 (Ga. App. 2008).